



```

CCCCCCCC RRRRRRRR FFFFFFFFFF 000000 RRRRRRRR
CCCCCCCC RRRRRRRR FFFFFFFFFF 000000 RRRRRRRR
CC        RR      RR FF          00      00 RR      RR
CC        RR      RR FF          00      00 RR      RR
CC        RR      RR FF          00      00 RR      RR
CC        RR      RR FF          00      00 RR      RR
CC        RRRRRRRR FFFFFFFFFF 00      00 RRRRRRRR
CC        RRRRRRRR FFFFFFFFFF 00      00 RRRRRRRR
CC        RR  RR   FF          00      00 RR  RR
CC        RR  RR   FF          00      00 RR  RR
CC        RR  RR   FF          00      00 RR  RR
CC        RR  RR   FF          00      00 RR  RR
CCCCCCCC RR      RR FF          000000 RR      RR
CCCCCCCC RR      RR FF          000000 RR      RR

```

```

LL        IIIIII SSSSSSSS
LL        IIIIII SSSSSSSS
LL        II     SS
LL        II     SS
LL        II     SS
LL        II     SS
LL        II     SSSSSS
LL        II     SSSSSS
LL        II     SS
LL        II     SS
LL        II     SS
LL        II     SS
LLLLLLLLLL IIIIII SSSSSSSS
LLLLLLLLLL IIIIII SSSSSSSS

```

CRFOR  
Table of contents

(2)	43
(3)	49
(4)	80
(5)	110

DECLARATIONS
LIB\$CRF_INS_KEY INSERT A KEY
LIB\$CRF_INS_REF INSERT REFERENCE
LIB\$CRF_OUTPUT OUTPUT THE CROSS REFERENCE LISTING

```
0000 1 .TITLE CRFOR FORTTRAN-CALLABLE CRF INTERFACE ROUTINES
0000 2 .IDENT 'V04-000'
0000 3
0000 4
0000 5 *****
0000 6 *****
0000 7 *
0000 8 * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
0000 9 * DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.
0000 10 * ALL RIGHTS RESERVED.
0000 11 *
0000 12 * THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED
0000 13 * ONLY IN ACCORDANCE WITH THE TERMS OF SUCH LICENSE AND WITH THE
0000 14 * INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR ANY OTHER
0000 15 * COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY
0000 16 * OTHER PERSON. NO TITLE TO AND OWNERSHIP OF THE SOFTWARE IS HEREBY
0000 17 * TRANSFERRED.
0000 18 *
0000 19 * THE INFORMATION IN THIS SOFTWARE IS SUBJECT TO CHANGE WITHOUT NOTICE
0000 20 * AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT
0000 21 * CORPORATION.
0000 22 *
0000 23 * DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS
0000 24 * SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
0000 25 *
0000 26 *****
0000 27 *****
0000 28
0000 29 :+
0000 30 : FACILITY: CROSS REFERENCE PROGRAM
0000 31 :
0000 32 : ABSTRACT: THIS MODULE CONTAINS INTERFACE ROUTINES TO CRF FOR FORTRAN
0000 33 :
0000 34 :
0000 35 : ENVIRONMENT: IT IS PART OF A LINKABLE IMAGE.
0000 36 :
0000 37 : AUTHOR: BENN SCHREIFER, CREATION DATE: 19-SEP-1979
0000 38 :
0000 39 : MODIFIED BY:
0000 40 :
0000 41 :--
```

0000 43 .SBTTL DECLARATIONS  
0000 44 :  
0000 45 : MACROS:  
0000 46 :  
0000 47 \$CRFDEF ; DEFINE CRF GLOBALS

```

0000 49      .SBTTL LIB$CRF_INS_KEY INSERT A KEY
0000 50      :++
0000 51      : FUNCTIONAL DESCRIPTION:
0000 52      :
0000 53      : (SEE CRFINSKEY.MAR)
0000 54      :
0000 55      : CALLING SEQUENCE:
0000 56      :
0000 57      : CALLS #4,LIB$CRF_INS_KEY
0000 58      :
0000 59      : INPUT PARAMETERS:
0000 60      :
0000 61      : CRF$L_IK_CTLTBL(AP)      ADDRESS OF THE OUTPUT FORMAT TABLE
0000 62      : CRF$L_IK_KEYADR(AP)     ADDRESS OF KEY
0000 63      : CRF$L_IK_VALADR(AP)  ADDRESS OF THE VALUE
0000 64      : CRF$W_IK_VALFLG(AP)  ADDRESS OF THE VALUE FLAGS
0000 65      :
0000 66      :--
0000 67      :
00000000 68      .PSECT $CODES, EXE, NOWRT
0000 69      :
0000 70      .ENTRY LIB$CRF_INS_KEY, ^M<>
0002 71      :
7E 10 BC 3C 0002 72      MOVZWL @CRF$W_IK_VALFLG(AP),-(SP)      ; EXTRACT THE VALUE FLAGS AND STACK
0C AC DD 0006 73      PUSHL CRF$L_IK_VALADR(AP)      ; STACK ADDRESS OF VALUE
08 AC DD 0009 74      PUSHL CRF$L_IK_KEYADR(AP)      ; STACK KEY ADDRESS
04 AC DD 000C 75      PUSHL CRF$L_IK_CTLTBL(AP)      ; STACK CONTROL TABLE ADDRESS
0000'CF 04 FB 000F 76      CALLS #4,W^CRF$INSRTKEY      ; INSERT KEY
0014 77      :
04 0014 78      RET      ; ALL DONE

```

```

0015 80 .SBTTL LIB$CRF_INS_REF INSERT REFERENCE
0015 81 :++
0015 82 : FUNCTIONAL DESCRIPTION:
0015 83 :
0015 84 : (SEE CRFINSREF.MAR)
0015 85 :
0015 86 : CALLING SEQUENCE:
0015 87 :
0015 88 : CALLS #5, LIB$CRF_INS_REF
0015 89 :
0015 90 : INPUT PARAMETERS:
0015 91 :
0015 92 : CRFSL_IR_CTLTBL(AP) ADDRESS OF THE OUTPUT FORMAT TABLE
0015 93 : CRFSL_IR_KEYADR(AP) ADDRESS OF KEY
0015 94 : CRFSL_IR_REFADR(AP) ADDRESS OF THE REFERENCE INDICATOR
0015 95 : CRFSW_IR_REFLAG(AP) ADDRESS OF THE REFERENCE FLAGS
0015 96 : CRFSB_IR_DEFIND(AP) ADDRESS OF DEF/REF INDICATOR
0015 97 :
0015 98 :--
0015 99 :
0000 0015 100 .ENTRY LIB$CRF_INS_REF, ^M<>
0017 101
7E 14 BC 9A 0017 102 MOVZBL @CRFSB_IR_DEFIND(AP),-(SP) ; STACK DEF/REF INDICATOR
7E 10 BC 3C 0018 103 MOVZWL @CRFSW_IR_REFLAG(AP),-(SP) ; STACK REFERENCE FLAGS
0C AC DD 001F 104 PUSHL CRFSL_IR_REFADR(AP) ; STACK ADDRESS OF REFERENCE INDICAT
08 AC DD 0022 105 PUSHL CRFSL_IR_KEYADR(AP) ; STACK ADDRESS OF KEY
04 AC DD 0025 106 PUSHL CRFSL_IR_CTLTBL(AP) ; STACK CONTROL TABLE ADDRESS
0000'CF 05 FB 0028 107 CALLS #5,W^CRF$INSRTREF ; INSERT REFERENCE
04 002D 108 RET

```

```

002E 110      .SBTTL LIB$CRF_OUTPUT OUTPUT THE CROSS REFERENCE LISTING
002E 111
002E 112      :++
002E 113      : FUNCTIONAL DESCRIPTION:
002E 114      :
002E 115      : (SEE CRFOUT.MAR)
002E 116      :
002E 117      : CALLING SEQUENCE:
002E 118      :
002E 119      : CALLS #6,LIB$CRF_OUTPUT
002E 120      :
002E 121      : INPUTS PARAMETERS:
002E 122      :
002E 123      : CRF$L_OU_CTLTBL(AP) ADDRESS OF THE OUTPUT FORMAT TABLE
002E 124      : CRF$L_OU_LINWID(AP) ADDRESS OF THE LINE WIDTH
002E 125      : CRF$B_OU_PAG1(AP) ADDRESS OF NUMBER OF LINES ON FIRST PAGE
002E 126      : CRF$B_OU_SUCPAG(AP) ADDRESS OF NUMBER OF LINES ON SUCCESSIVE PAGES
002E 127      : CRF$B_OU_PRTIND(AP) ADDRESS OF THE PRINT INDICATOR
002E 128      : CRF$K_VALUES PRINT VALUES
002E 129      : CRF$K_DEFS_REFS PRINT VALUES, DEFS AND REFS
002E 130      : CRF$K_VALS_REFS PRINT VALUES AND REFS
002E 131      : CRF$B_OU_SAVIND(AP) ADDRESS OF THE SAVE/DELETE INDICATOR
002E 132      : CRF$K_SAVE SAVE THE CRF TABLE
002E 133      : CRF$K_DELETE DELETE THE CRF TABLE
002E 134      :
002E 135      :--
002E 136
0000 002E 137      .ENTRY LIB$CRF_OUTPUT, ^M<>
0030 0030 138
0030 0030 139      MOVZBL @CRF$B_OU_SAVIND(AP),-(SP) ; STACK SAVE/DELETE INDICATOR
0034 0034 140      MOVZBL @CRF$B_OU_PRTIND(AP),-(SP) ; STACK PRINT INDICATOR
0038 0038 141      MOVZBL @CRF$B_OU_SUCPAG(AP),-(SP) ; STACK # LINES ON SUCCESSIVE PAGES
003C 003C 142      MOVZBL @CRF$B_OU_PAG1(AP),-(SP) ; STACK # LINES ON FIRST PAGE
0040 0040 143      PUSHL @CRF$L_OU_LINWID(AP) ; STACK THE LINE WIDTH
0043 0043 144      PUSHL CRF$L_OU_CTLTBL(AP) ; STACK CONTROL TABLE ADDRESS
0046 0046 145      CALLS #6,W^CRF$OUT ; OUTPUT THE CROSS REFERENCE
004B 004B 146      RET
004C 004C 147
004C 004C 148      .END
  
```



CRFOR  
Symbol table

FORTTRAN-CALLABLE CRF INTERFACE ROUTINES

15-SEP-1984 23:38:15  
4-SEP-1984 23:39:00

VAX/VMS Macro V04-00  
[CRF.SRC]CRFOR.MAR;1

```

CRFSB_IR_DEFIND      = 00000014
CRFSB_OU_PAG1       = 0000000C
CRFSB_OU_PRTIND     = 00000014
CRFSB_OU_SAVIND    = 00000018
CRFSB_OU_SUCPAG    = 00000010
CRFSINSRTKEY       ***** X 02
CRFSINSRTREF       ***** X 02
CRFSL_IK_CTLTBL    = 00000004
CRFSL_IK_KEYADR    = 00000008
CRFSL_IK_VALADR    = 0000000C
CRFSL_IR_CTLTBL    = 00000004
CRFSL_IR_KEYADR    = 00000008
CRFSL_IR_REFADR    = 0000000C
CRFSL_OU_CTLTBL    = 00000004
CRFSL_OU_LINWID    = 00000008
CRFSOOT           ***** X 02
CRFSW_IK_VALFLG    = 00000010
CRFSW_IR_REFLAG    = 00000010
LIBSCRF_INS_KEY    00000000 RG 02
LIBSCRF_INS_REF    00000015 RG 02
LIBSCRF_OUTPUT     0000002E RG 02

```

```

+-----+
! Psect synopsis !
+-----+

```

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 ( 0.)	00 ( 0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
\$AB\$\$	00000000 ( 0.)	01 ( 1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
\$CODE\$	0000004C ( 76.)	02 ( 2.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC BYTE

```

+-----+
! Performance indicators !
+-----+

```

Phase	Page faults	CPU Time	Elapsed Time
Initialization	42	00:00:00.08	00:00:00.41
Command processing	168	00:00:00.59	00:00:02.25
Pass 1	129	00:00:01.18	00:00:04.31
Symbol table sort	0	00:00:00.02	00:00:00.04
Pass 2	44	00:00:00.39	00:00:01.02
Symbol table output	4	00:00:00.02	00:00:00.03
Psect synopsis output	2	00:00:00.02	00:00:00.03
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	391	00:00:02.31	00:00:08.10

The working set limit was 1050 pages.  
3968 bytes (8 pages) of virtual memory were used to buffer the intermediate code.  
There were 10 pages of symbol table space allocated to hold 46 non-local and 0 local symbols.  
148 source lines were read in Pass 1, producing 22 object records in Pass 2.  
8 pages of virtual memory were used to define 7 macros.

-----  
! Macro library statistics !  
-----

Macro library name	Macros defined
-----	-----
_\$255\$DUA28:[CRF.OBJ]CRF.MLB;1	1
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2	3
TOTALS (all libraries)	4

99 GETS were required to define 4 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:CRFOR/OBJ=OBJ\$:CRFOR MSRC\$:CRFOR/UPDATE=(ENH\$:CRFOR)+LIB\$:CRF/LIB

